In the claims:

1. (Original) A process for curing a dielectric material on a substrate comprising:

(a) applying to a surface of said substrate a dielectric material; and

(b) exposing said dielectric material to electron beam radiation under conditions sufficient to cure the dielectric material into a film possessing desired characteristics.

2. (Original) The process of claim 2 wherein said dielectric material is comprised of silicates, phosphosilicates, siloxanes, phosphosiloxanes or mixtures thereof.

3. (Original) The process of claim 2 wherein said dielectric material is comprised of, before exposure to said electron beam radiation, a siloxane having, based upon the total weight of said siloxane, of from about 2% to about 90% of organic groups comprising alkyl groups having from about 1 to about 10 carbons, aromatic groups having from about 4 to about 10 carbons, aliphatic groups having from about 4 to about 10 carbons, or mixtures thereof.

4. (Original) The process of claim 2 wherein said dielectric material is comprised of, based upon the total weight of said dielectric material, from about 0 % to about 10 % phosphorus.

5. (Original) The process of claim 1 wherein said dielectric material is applied to said substrate via spin-coating.

6. (Currently Amended) The process of claim 1 wherein said [film] <u>dielectric material</u> has a thickness of from about 500 Å to about 20000 Å.

7. (Original) The process of claim 1 wherein said dielectric material is cured at a temperature of from about 25 ^{0}C to about 400 ^{0}C.

8. (Original) The process of claim 1 wherein said dielectric material is cured at a

pressure of from about 10 mtorr to about 200 mtorr.

9. (Original) The process of claim 1 wherein said substrate is preheated with a temperature of from about 50 ^{0}C to about 250 °C before said dielectric material is exposed to electron beam radiation.

10. (Currently Amended) The process of claim 1 wherein said [substrate] <u>dielectric material</u> is exposed to electron beam radiation in the presence of a gas selected from the group consisting of oxygen, argon, nitrogen, helium and mixtures thereof.

11. (Currently Amended) A film <u>comprising a dielectric material on a surface of a substrate</u> produced according to the process of claim 1.

12. (Currently Amended) [A substrate coated with at least one layer of the film] <u>An article produced by the process</u> of claim 1.

13. (Currently Amended) A microelectronic device containing the [substrate] <u>article</u> of claim 12.

14. (Canceled)

15. (Currently Amended) The process of claim [14] <u>1</u> wherein said [chemical vapor deposit]<u>dielectric</u> material is comprised of plasma-enhanced tetra-ethyl ortho silicate, silane based oxide, boron-phosphosilicate glass, phosphosilicate glass, nitride, anhydride film, oxynitride, borophospho glass from tetraethyl orthosilane, or mixtures thereof.

16. (Currently Amended) The process of claim [14] <u>1</u> wherein said [chemical vapor deposit]<u>dielectric</u> material is a silane-based oxide.

17. (Currently Amended) The process of claim [14] <u>1</u> wherein said [chemical vapor

deposit]dielectric material is applied to said substrate in the presence of a gas comprising a mixture of tetra-ethyl ortho silicate and oxygen or oxygen, silane and optionally diborane, phosphine, and nitrous oxide.

18. (Currently Amended) The process of claim [14] 1 wherein said [chemical vapor deposit] dielectric material is applied to said substrate via spin-coating.

19. The process of claim [14] wherein said [film] dielectric material has a thickness of from about 500 Å to about 20000 Å.

20. (Currently Amended) The process of claim [14] 1 wherein said [chemical vapor deposit] dielectric material is annealed at a temperature of from about 25 ^{0}C to about 400 ^{0}C.

21. (Currently Amended) The process of claim [14] 1 wherein said [chemical vapor deposit] dielectric material is annealed at a pressure of from about 10 mtorr to about 200 mtorr.

22. (Currently Amended) The process of claim [14] 1 wherein said substrate is preheated to a temperature of from about 50 ^{0}C to about 250 ^{0}C before exposure to electron beam radiation.

23. (Currently Amended) The process of claim [14] 1 wherein said substrate is exposed to electron beam radiation in the presence of a gas selected from the group consisting of oxygen, argon, nitrogen, helium and mixtures thereof.

24 - 26. (Canceled)

27. (Original) A process for growing ultra-thin film oxides or nitrides on a substrate comprising:

(a) exposing a surface of the substrate to electron beam radiation in the presence of a material in a gaseous state and under conditions sufficient to ionize the material and promote an oxidization or nitridation reaction on the surface of the substrate.

28. (Original) The process of claim 27 wherein said substrate is comprised of gallium arsenide or silicon.

29. (Original) The process of claim 28 wherein said substrate is comprised of crystalline silicon, polysilicon, amorphous silicon, epitaxal silicon, or silicon dioxide.

30. (Original) The process of claim 27 wherein said material is comprised of oxygen, ammonia, nitrogen, nitrous oxide, reaction products or mixtures thereof in the form of a gas, a sublimed solid or a vaporized liquid.

31. (Original) The process of claim 27 wherein said oxides or nitrides are grown on said substrate simultaneously while said substrate is exposed to electron beam radiation.

32. (Original) The process of claim 27 wherein said ultra-thin film oxides or nitrides have a thickness of from about 10 Å to about 1000 Å.

33. (Original) The process of claim 27 wherein said material is ionized at a temperature of from about 25 °C to about 400 °C.

34. (Original) The process of claim 27 wherein said material is ionized at a pressure of from about 10 mtorr to about 200 mtorr.

35. (Original) The process of claim 27 wherein said substrate is preheated to a temperature of from about 50 °C to about 250 °C before exposure to electron beam radiation.

36. (Original) An ultra-thin film oxide or nitride produced according to the process of claim 27.

37. (Original) A substrate coated with at least one layer of the film of claim 36.

38. (Original) A microelectronic device containing the substrate of claim 37.

39. (Original) A process for reducing the dielectric constant in substrates coated with a dielectric material comprised of exposing said material to electron beam radiation under conditions sufficient to cure said material.

40. (Original) A process for reducing the dielectric constant in substrates coated with a chemical vapor deposit material comprised of exposing said material to electron beam radiation under conditions sufficient to cure said material.

41. (Original) A microelectronic device containing a substrate coated with a film which was exposed to electron beam radiation, wherein the dielectric constant of said electron-beam processed film is less than about 3.

42. (Original) The process of claim 1 wherein said dielectric material is exposed to electron beam radiation for about 2 minutes to about 45 minutes.

43. (Original) The process of claim 1 wherein said substrate is a silicon wafer.

44. (Canceled)

45. (Original) The process of claim 27 wherein said substrate is a silicon wafer.

46. (New) The process of claim 1 wherein the exposing is conducted with an electron beam which covers an area of from about 4 square inches to about 144 square inches.

47. (New) The process of claim 1 wherein the exposing is conducted with an electron beam dose of from about 1000 to about 50,000 $\mu C/cm^2$.

48. (New) The process of claim 1 wherein the exposing is conducted with an electron beam at a voltage of from about 1 to about 25 KeV.